SPEC® CINT2006 Result

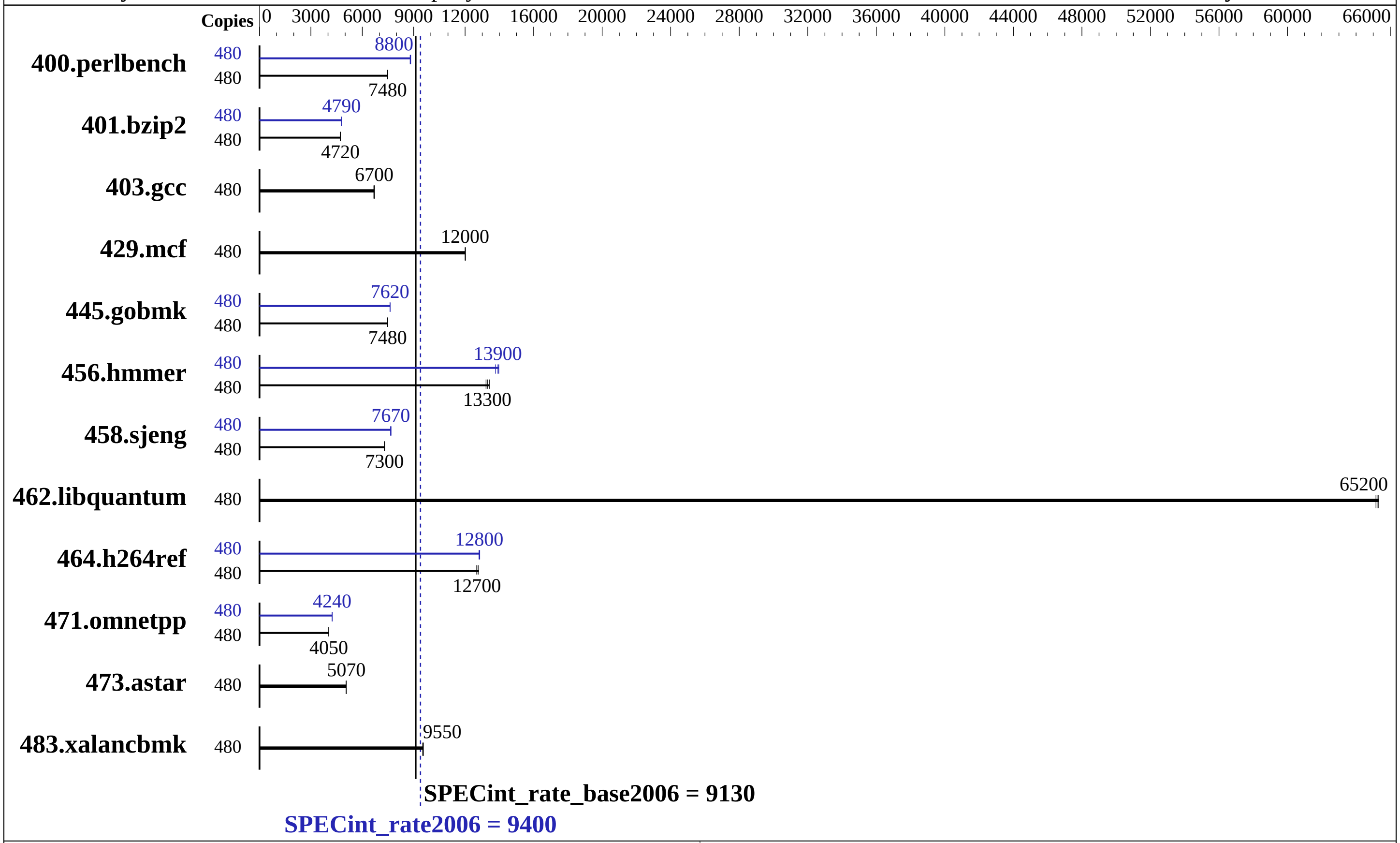
Hewlett-Packard Company

HP Integrity Superdome X
(240 core, 2.80 GHz, Intel Xeon E7-2890 v2)

SPECint®_rate2006 = 9400

SPECint_rate_base2006 = 9130

CPU2006 license: 3		**Test date:**	Sep-2014
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Dec-2014
Tested by:	Hewlett-Packard Company	**Software Availability:**	Jul-2014



Hardware

CPU Name:	Intel Xeon E7-2890 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	240 cores, 16 chips, 15 cores/chip, 2 threads/core
CPU(s) orderable:	8,16 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	37.5 MB I+D on chip per chip
Other Cache:	None
Memory:	4 TB (128 x 32 GB 4Rx4 PC3-14900L-13, ECC, running at 1333 MHz)
Disk Subsystem:	8 x C8S59A, 900 GB 10K RPM SAS
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) SP3 Kernel 3.0.101-0.30-bigsmp
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0

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Results Table

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	480	**627**	**7480**	627	7480	626	7490	480	**533**	**8800**	533	8790	531	8830
401.bzip2	480	**981**	**4720**	984	4710	981	4720	480	968	4790	966	4790	**968**	**4790**
403.gcc	480	576	6710	579	6670	**577**	**6700**	480	576	6710	579	6670	**577**	**6700**
429.mcf	480	364	12000	**365**	**12000**	365	12000	480	364	12000	**365**	**12000**	365	12000
445.gobmk	480	673	7480	**673**	**7480**	673	7480	480	661	7620	**661**	**7620**	661	7610
456.hmmer	480	339	13200	334	13400	**337**	**13300**	480	321	14000	325	13800	**322**	**13900**
458.sjeng	480	797	7290	795	7300	**796**	**7300**	480	756	7680	**758**	**7670**	760	7650
462.libquantum	480	153	65200	152	65300	**152**	**65200**	480	153	65200	152	65300	**152**	**65200**
464.h264ref	480	838	12700	830	12800	**837**	**12700**	480	829	12800	**828**	**12800**	826	12900
471.omnetpp	480	742	4040	741	4050	**741**	**4050**	480	707	4240	707	4240	**707**	**4240**
473.astar	480	665	5070	**665**	**5070**	667	5050	480	665	5070	**665**	**5070**	667	5050
483.xalancbmk	480	**347**	**9550**	348	9530	346	9570	480	**347**	**9550**	348	9530	346	9570

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
intel_idle.max_cstate=1 appended in kernel command line
Power profile set with:
 cpupower -c all frequency-set -g performance
Benchmark installed under /dev/shm/cpu2006 and mount with:
 mount -o bind /dev/shm/cpu2006 /cpu2006
Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
 echo 1 >       /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

Platform Notes

```
Firmware settings:
 Memory RAS Configuration set to Maximum Performance
Sysinfo program /cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on hawk036os1 Mon Sep 22 18:36:42 2014
```

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Platform Notes (Continued)

```
This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E7-2890 v2 @ 2.80GHz
      16 "physical id"s (chips)
      480 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 15
      siblings  : 30
      physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 4: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 5: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 6: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 7: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 8: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 9: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 10: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 11: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 12: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 13: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 14: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 15: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
   cache size : 38400 KB

From /proc/meminfo
   MemTotal:       4235862504 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 3

uname -a:
   Linux hawk036os1 3.0.101-0.30-bigsmp #1 SMP Fri May 23 16:16:00 UTC 2014
   (bd1c1f5) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 22 16:36 last=S

SPEC is set to: /cpu2006
```

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Platform Notes (Continued)

```
    Filesystem     Type   Size  Used Avail Use% Mounted on
    tmpfs          tmpfs  2.0T  4.1G  2.0T   1% /dev/shm

 Additional information from dmidecode:
   BIOS HP Bundle: 005.050.012 SFW: 014.010.000 05/07/2014
   Memory:
    128x HP HMT84GL7AMR4C-RD 32 GB 1867 MHz
    256x not defined not defined

 (End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 4 TB. Also, sysinfo gathered the wrong information from dmidecode about
speed of the DIMMs. The reported 1867 MHz value is the maximum DIMM speed, but
the configured speed is really 1333 MHz. The dmidecode description should have
one line reading as:
 128x HP HMT84GL7AMR4C-RD 32 GB 1333 MHz
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
```

Base Compiler Invocation

C benchmarks:
`icc  -m32`

C++ benchmarks:
`icpc -m32`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3`

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Base Optimization Flags (Continued)

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32

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Peak Optimization Flags (Continued)

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-Integrity-revA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-Integrity-revA.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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